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ABSTRACT

This study of occupational education in New York State school districts provides background information pertinent to the financing of occupational education. It concerns vocational programs for grades 9 through 12 in terms of education which prepares people for employment in occupations requiring less than the baccalaureate degree. The study consists of four main elements in connection with occupational education: (1) state policies; (2) pupil enrollments; (3) classroom-teacher staffing; and (4) costs. These elements were analyzed from the standpoint of determining costs, and to state the resulting findings and conclusions. State policies are explained in terms of several major concepts. Occupational education enrollments for grades 9-12 (1972-73 through 1975-76) are examined, by program area. The numbers of occupational education classroom teachers are shown, and variations in the percentages of teachers in the different program areas are compared. Comparative occupational education costs are reviewed program by program and city by city using per-pupil costs. Several programs of state aid for occupational education pupils are compared. Findings and conclusions are included along with a list of basic guidelines for funding proposals in occupational education. Data tables illustrate each section. (CT)

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OCCASIONAL PAPER #13

A STUDY RELATED TO PUBLIC LAW 93-380, SECTION 842

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U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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OCCASIONAL PAPER #13

A STUDY RELATED TO PUBLIC LAW 93-380, SECTION 842

INTRODUCTION

This is a study of occupational education in New York State school districts. Its purpose is to provide background information pertinent to the financing of occupational education.

The study consists of four main elements in connection with occupational education: (1) state policies; (2) pupil enrollments; (3) classroom-teacher staffing; and (4) costs. An attempt has been made to analyze each of these elements, particularly from the standpoint of determining costs, and to state the resulting findings and conclusions.

Visits were made to representative Boards of Cooperative Educational Services (BOCES) and local school districts. Discussions were held with State Education Department (SED) occupational education officials as well as with chief school administrators, assistant superintendents for instruction, school business officials, and directors of occupational education. All of these were for the express purpose of ensuring accuracy, validity, objectivity, and comparability.

"Occupational education begins in the earliest grades and extends through all instructional levels, serving all people, regardless of age."[1] Occupational education involves programs and/

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[1] Position Paper No. 11, Occupational Education -- A Statement of Policy and Proposed Action by the Regents of the University of the State of New York, The State Education Department, Albany, May 1971, p. 7.

or courses for elementary, secondary, and post-secondary students as well as for adults and out-of-school youth. This report defines occupational education in three broad terms. The first area, the one on which this report concentrates, treats occupational education as "that part of the educational process which prepares people for employment in occupations requiring less than the baccalaureate degree."[1] The second area includes occupational education as part of the regular academic program. And the third area deals with state aid apportionments, which limits occupational education programs to four subject areas--trade and industrial, technical, agriculture, and health.[2]

This report is concerned with occupational education for grades 9 through 12 in terms of the first area mentioned previously. Further, in analyzing costs, approved operating expenditures are mainly considered since capital expenditures, including buildings and equipment, for occupational education are a part of "Project 842's"[3] building aid study.

STATE POLICIES

The Board of Regents' policy concerning occupational education is summarized by the following major concepts:[4]

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[1]Position Paper No. 11, Occupational Education--A Statement of Policy and Proposed Action by the Regents of the University of the State of New York, The State Education Department, Albany, May 1971, p. 6.

[2]Regulations of the Commissioner of Education, Section 141.2.

[3]"Project 842" is a federally funded project under PL93-380 of 1974.

[4]Position Paper No. 11, op. cit., p. 17.

1. To develop a comprehensive system of occupational education serving all persons in need of occupational preparation through utilization of all available resources, public and private, which offer such preparation.

2. To provide a comprehensive occupational education system that will make available to every person a continuum of educational opportunities beginning in early childhood and extending beyond high school for as long as that person needs or desires such opportunities;

3. To provide, through occupational orientation in the elementary, middle, and early secondary years, all students with the basis for informed decisions regarding their occupational and educational plans for the immediate future;

4. To expand and improve occupational education services for adults and out-of-school youth through orderly arrangements which eliminate wasteful competition and duplication of efforts;

5. To conduct all occupational education programs within the framework of a State and regional planning process, coordinated by the State as part of its overall responsibility for education, and involving all levels of government and all agencies or groups which operate or are affected by occupational programs.

These policies appear to be well accepted in New York State by occupational education specialists. They are profoundly committed to implement them both at state and local levels. For example, the annual Occupational Education State Plans[1] are based on these policies with detailed information accumulated on long-range priorities and objectives, related annual activities, and costs for each population level. In order to achieve the Regents' objectives for occupational education, activities and proposed funds must be coordinated. At the end of each year an Annual Report[2] describes the state's accomplishments in occupational ed-

[1] New York State Plan for the Administration of Occupational Education Under the Vocational Education Amendments of 1968 and Part F of the Higher Education Act of 1965, Fiscal Year 1977.

[2] New York State Annual Report for Occupational Education, July 1, 1975-June 30, 1976, SED, Office of Occupational and Continuing Education, Albany, N.Y.

ucation in terms of each planned stated objective and goal. The Annual Report also provides pertinent statistical information about occupational education programs.

The Rochester[1] and Yonkers[2] City School Districts planning documents speak directly to Regents' policies for occupational education and illustrate how some local districts are implementing these policies. More specifically, the Rochester Board of Education Resolution No. 7.2 adopted May 15, 1975,[3] by direct reference to Regents' occupational education policy, provides evidence of local commitment to state policy.

Many of the state's occupational goals and objectives could not be fully realized because of financial constraints. The two most common ones were that guidance counselors were overburdened with case load and paper work and the tendency in some cases for the administration to place undue emphasis on economic, rather than educational, factors.

OCCUPATIONAL EDUCATION ENROLLMENTS GRADES 9-12

During the period 1972-73 through 1975-76 total

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1 Occupational Education Past, Present, and Future in the City School District Rochester, New York 1976, Department of Career Occupational & Continuing Education.

2 Supplement to Five-Year Occupational Plan, Fiscal Year July 1, 1976-June 30, 1977, Yonkers Public Schools, Department of Occupational Education.

3 Occupational Education Past, Present, and Future, op. cit., p. 165.

occupational education enrollments Grades 9-12 ranged from approximately 367,000 to 381,000. The Office Practice area of Occupational education has consistently had the highest enrollments (56% to 61% of the total); the Trades and Industry program area has had the second highest enrollments (25% to 27%); and the other five program areas have each had a small percentage of the total occupational education enrollments (2% to 5%). Table 1 contains these data.

Enrollments have been quite consistently distributed by location during the past three years, BOCES accomodating about 14% of the total, the Big Five about 38%, and the LEA's about 48%. New York City has accounted for approximately one third of the total state occupational education enrollments and about 80% of the Big Five such enrollments. See Tables 2 and 3.

Approximately 98% of the Office program area enrollments have been in school districts (LEA's having about 64% and the Big Five 34%) with the remaining 2% in BOCES. A somewhat similar pattern exists for the Distribution and Technical program areas except that the Big Five have accounted for approximately 78% of the Technical program area enrollments leaving about 14% in the LEA's and 8% in BOCES. See Table 3.

BOCES have had a much higher percentage of enrollments in the other four program areas--about 48% in Health, 40% in Agriculture, 38% in Home Economics, and 34% in Trades and Industry. In these same four program areas the pattern varies for the Big Five and the LEA's. Specifically, in the Health area the Big Five have had about 47% of the enrollments and the LEA's 5%; in

TABLE 1

OCCUPATIONAL EDUCATION ENROLLMENTS 9-12
BY PROGRAM AREA AND PERCENTAGES

1972-73 THROUGH 1975-76

OCCUPATIONAL PROGRAM AREA	1975-76		1974-75		1973-74		1972-73	
	Enrollment	% Grand Total	Enrollment	% Grand Total	Enrollment	% Grand Total	Enrollment	% Grand Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Agriculture	13,004	3.4	13,116	3.4	12,552	3.2	12,201	3.3
Health	11,931	3.1	12,126	3.1	13,334	3.4	12,603	3.4
Home Economics	5,694	1.5	8,751	2.2	8,075	2.1	7,245	2.0
Technical	8,725	2.3	9,374	2.4	14,122	3.6	12,103	3.3
Trades and Industry	93,884	24.6	104,324	26.8	105,203	27.0	98,681	26.9
Subtotal	133,238	34.9	147,691	37.9	153,286	39.3	142,833	38.9
Distribution	15,950	4.2	21,088	5.4	18,400	4.7	18,913	5.1
Office	232,181	60.9	221,049	56.7	217,904	56.0	205,711	56.0
Grand Total	381,369	100.0	389,828	100.0	389,590	100.0	367,457	100.0

Includes 7th and 8th Grade Agriculture Enrollments.

Source: New York State Annual Reports for Occupational Education.

TABLE 2

OCCUPATIONAL EDUCATION ENROLLMENTS 9-12 BY PROGRAM AREA AND LOCATION

1973-74 THROUGH 1975-76

OCCUPATIONAL PROGRAM AREA (1)	BOCES (2)	BIG FIVE					SUBTOTAL BIG FIVE (8)	LEA'S (9)	GRAND TOTAL (10)
		Buffalo (3)	New York City (4)	Rochester (5)	Syracuse (6)	Yonkers (7)			
Agriculture:									
1975-76	4,226	131	1,336	-	-	12	1,479	4,636	10,341
1974-75	4,050	113	1,207	35	-	13	1,368	4,704	10,122
1973-74	3,838	83	460	-	7	11	561	5,402	9,801
Health:									
1975-76	6,345	230	4,487	134	133	22	5,006	580	11,931
1974-75	5,933	201	4,986	126	165	10	5,488	705	12,126
1973-74	5,823	185	6,377	144	211	9	6,926	585	13,334
Home Economics:									
1975-76	2,331	53	1,819	193	90	54	2,209	1,154	5,694
1974-75	2,722	194	2,086	76	119	13	2,488	3,541	8,751
1973-74	3,312	118	2,633	3	178	10	2,942	1,821	8,075
Technical:									
1975-76	774	1,094	5,276	119	78	163	6,730	1,221	8,725
1974-75	741	1,078	6,007	45	62	207	7,399	1,297	9,437
1973-74	1,069	1,101	9,385	270	227	214	11,197	1,856	14,122
Trades and Industry:									
1975-76	35,284	4,137	37,755	2,053	802	859	45,606	12,994	93,884
1974-75	32,926	4,067	44,576	1,826	918	835	52,222	19,176	104,324
1973-74	34,330	4,542	42,843	2,405	1,016	706	51,512	19,361	105,203
Subtotals:									
1975-76	48,960	5,645	50,673	2,499	1,103	1,110	61,030	20,585	130,575
1974-75	46,372	5,653	58,862	2,108	1,264	1,078	68,965	29,423	144,760
1973-74	48,372	6,029	61,698	2,822	1,639	950	73,138	29,025	150,535
Distribution:									
1975-76	849	525	3,949	61	147	25	4,707	10,394	15,950
1974-75	840	492	5,716	73	197	30	6,508	13,740	21,088
1973-74	1,420	737	3,513	88	226	79	4,643	12,337	18,400
Office:									
1975-76	4,030	4,790	67,639	3,263	2,532	2,144	80,368	147,783	232,181
1974-75	3,792	4,815	65,302	2,920	2,167	2,769	77,973	139,259	221,024
1973-74	6,694	5,327	50,988	3,736	2,746	3,662	66,459	144,751	217,904
Grand Totals:									
1975-76	53,839	10,960	122,261	5,823	3,782	3,279	146,105	178,762	378,706
1974-75	51,004	10,960	129,880	5,101	3,628	3,877	153,446	182,422	386,872
1973-74	56,486	12,093	116,199	6,646	4,611	4,691	144,240	186,113	386,839

Excludes 7th and 8th Grade Agriculture Enrollments.

Source: Computed from New York State Annual Reports for Occupational Education and Information Center on Education.

TABLE 3

OCCUPATIONAL EDUCATION ENROLLMENTS 9-12 BY PROGRAM AREA AND LOCATION AS A PERCENT OF TOTAL NEW YORK STATE 1973-74 THROUGH 1975-76

OCCUPATIONAL PROGRAM AREA	GRAND TOTAL		BOCES		BIG FIVE		LEA'S	
	Amount	%	Amount	%	Amount	%	Amount	%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Agriculture:								
1975-76	10,341	100.0	4,226	40.9	1,479	14.3	4,636	44.8
1974-75	10,122	100.0	4,050	40.0	1,368	13.5	4,704	46.5
1973-74	9,801	100.0	3,838	39.2	561	5.7	5,402	55.1
Health:								
1975-76	11,931	100.0	6,345	53.2	5,006	41.9	580	4.9
1974-75	12,126	100.0	5,933	48.9	5,488	45.3	705	5.8
1973-74	13,334	100.0	5,823	43.7	6,926	51.9	585	4.4
Home Economics:								
1975-76	5,694	100.0	2,331	40.9	2,209	38.8	1,154	20.3
1974-75	8,751	100.0	2,722	31.1	2,488	28.4	3,541	40.5
1973-74	8,075	100.0	3,312	41.0	2,942	36.4	1,821	22.6
Technical:								
1975-76	8,725	100.0	774	8.9	6,730	77.1	1,221	14.0
1974-75	9,437	100.0	741	7.9	7,399	78.4	1,297	13.7
1973-74	14,122	100.0	1,069	7.6	11,197	79.3	1,856	13.1
Trades and Industry:								
1975-76	93,884	100.0	35,284	37.6	45,606	48.6	12,994	13.8
1974-75	104,324	100.0	32,926	31.5	52,222	50.1	19,176	18.4
1973-74	105,203	100.0	34,330	32.6	51,512	49.0	19,361	18.4
Subtotals:								
1975-76	130,575	100.0	48,960	37.5	61,030	46.7	20,585	15.8
1974-75	144,760	100.0	46,372	32.1	68,965	47.6	29,423	20.3
1973-74	150,535	100.0	48,372	32.1	73,138	48.6	29,025	19.3
Distribution:								
1975-76	15,950	100.0	849	5.3	4,707	29.5	10,394	65.2
1974-75	21,088	100.0	840	4.0	6,508	30.9	13,740	65.1
1973-74	18,400	100.0	1,420	7.7	4,643	25.2	12,337	67.1
Office:								
1975-76	232,181	100.0	4,030	1.7	80,368	34.6	147,783	63.7
1974-75	221,024	100.0	3,792	1.7	77,973	35.3	139,259	63.0
1973-74	217,904	100.0	6,694	3.1	66,459	30.5	144,751	66.4
Grand Totals:								
1975-76	378,706	100.0	53,839	14.2	146,105	38.6	178,762	47.2
1974-75	386,872	100.0	51,004	13.2	153,446	39.7	182,422	47.1
1973-74	386,839	100.0	56,486	14.6	144,240	37.3	186,113	48.1

Excludes 7th and 8th Grade Agriculture Enrollments. Source: Computed from New York State Annual Reports for

the Agriculture program area the LEA's have had about 49% and the Big Five 11%; in the Home Economics program area the Big Five have had about 34% and the LEA's 28%; and in the Trades and Industry program area the Big Five have had about 49% and the LEA's 17%.

Throughout this report the Office and Distribution program areas have been deliberately separated in the tables shown from the other five program areas, because nearly all of the Office and Distribution enrollments are in school districts rather than in BOCES.

During the past four years the population groups for occupational education students have remained fairly constant and quite similar to those for all public school pupils. Approximately 73% of the occupational education students have been in the general population group, about 25% in the disadvantaged group, and about 2% in the handicapped group. See Table 4.

Over the past four years occupational education enrollments 9-12 have averaged about 35% of the total school enrollments 9-12. See Table 5.

Some of the courses within the Office Practice Area have the largest enrollments. For the past four years the "Typing and Related Occupations" course has had the single highest enrollments, averaging about 88,000 or 41% of the total enrollments in the Office Practice area. The "Steno, Secretarial and Related Occupations" course has had the second highest enrollments averaging about 41,000 students or 19% of the total enrollments. The "Accounting and Computing Occupations" course averaged 39,000 pupils or 18% of the total enrollments. Enroll-

TABLE 4

OCCUPATIONAL EDUCATION ENROLLMENTS 9-12
BY POPULATION GROUPS AND PERCENTAGES

1972-73 THROUGH 1975-76

POPULATION GROUP	1975-76		1974-75		1973-74		1972-73	
	Enrollment	Percent	Enrollment	Percent	Enrollment	Percent	Enrollment	Percent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
General	269,291	72	273,462	71	286,573	74	267,848	74
Disadvantaged	99,817	26	97,494	25	92,200	24	88,556	24
Handicapped	9,598	2	15,916	4	8,066	2	8,375	2
Total*	378,706	100	386,872	100	386,839	100	364,779	100

*Excludes 7th and 8th Grade Agriculture Enrollments.

Source: New York State Annual Report for Occupational Education.

TABLE 5

PERCENT OCCUPATIONAL EDUCATION ENROLLMENTS 9-12
OF TOTAL PUBLIC SCHOOL ENROLLMENTS 9-12

1972-73 THROUGH 1975-76

ITEM (1)	1975-76 (2)	1974-75 (3)	1973-74 (4)	1972-73 (5)
Total Public School Enrollment 9-12	1,088,843	1,076,556	1,067,094	1,058,613
Occupational Education Enrollment 9-12	378,706	386,872	386,839	364,779
Percent Occupational Education Enrollment 9-12 of Total Public School Enrollment 9-12	35	36	36	34

Sources: New York State Annual Reports for Occupational Education and Annual Education Summaries (Information Center on Education).

ments in the "Steno, Secretarial and Related Occupations" course have declined about one-third in the last two years, while enrollments in the "Accounting and Computing Occupations" course have increased about 25% during that time. See Table 6.

The Trades and Industry Program area has had the second highest enrollments. The "Auto Mechanics and Other Automotive" course had the highest enrollment for that area, averaging about 17,000 students or 18% of the total enrollments of the Trades and Industry Program.

The "General Merchandise" course has had the largest percentage of total enrollments in the Distribution Program area, averaging 77% (or 14,000 students).

In the Agriculture program area enrollments in all courses except "Agricultural Supplies/Services" have been quite evenly divided.

The two nursing courses in the Health program area that have had the highest enrollments were "Practical (Vocational) Nursing," averaging 4,700 students or 38%; and "Nursing Assistant (Aide)" course averaging 3,100 students or 25% of the total.

In the Home Economics program area the "Care and Guidance of Children" course has had the highest enrollment, averaging 2,200 students or 30% over the past four years; enrollments in this course jumped significantly percentagewise from about 27% in 1972-73 to 39% in 1975-76. The "Food Management, Production and Services" course has had the second highest enrollments in the Home Economics program area, averaging about 1,900 students or 26% of total enrollments.

TABLE 6

ENROLLMENTS IN OCCUPATIONAL EDUCATION 9-12
BY PROGRAMS AND PERCENTAGES

1972-73 THROUGH 1975-76

PROGRAMS	1975-76		1974-75		1973-74		1972-73	
	Enrollment	%	Enrollment	%	Enrollment	%	Enrollment	%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Agriculture:								
Agriculture Production	1,857	14.3	1,844	14.1	1,742	13.9	1,554	12.7
Agricultural Supplies/Services	222	1.7	76	.6	156	1.2	39	.3
Agricultural Mechanics	1,775	13.6	1,625	12.4	1,879	15.0	1,712	14.0
Agricultural Products	-	-	197	1.5	22	.2	5	-
Ornamental Horticulture	1,895	14.6	1,655	12.6	1,151	9.2	1,021	8.4
Agricultural Resources & Forestry	1,805	13.9	1,807	13.8	1,551	12.3	1,543	12.7
Other	5,450	41.9	5,912	45.0	6,051	48.2	6,327	51.9
Subtotal	13,004	100.0	13,116	100.0	12,552	100.0	12,201	100.0
Distribution:								
Advertising Services	1,100	6.9	4,557	21.6	1,428	7.8	1,563	8.3
Apparel and Accessories	211	1.3	587	2.8	498	2.7	592	3.1
Automotive	60	.4	64	.3	39	.2	16	.1
Finance and Credit	1	-	69	.3	3	-	26	.1
Food Distribution & Services	103	.6	149	.7	149	.8	164	.9
General Merchandise	12,890	80.8	14,353	68.1	14,480	78.7	15,009	79.5
Hardware, Building Materials	2	-	12	.1	11	-	7	-
Home Furnishings	-	-	-	-	10	-	-	-
Hotel and Lodging	7	-	9	-	-	-	8	-
Insurance	-	-	6	-	-	-	1	-
Real Estate	37	.2	57	.3	28	.2	-	-
Recreation and Tourism	123	.8	68	.3	31	.2	25	.1
Transportation	88	.6	215	1.0	518	2.8	444	2.3
Other	1,322	8.4	942	4.5	1,205	6.6	1,058	5.6
Subtotal	15,950	100.0	21,088	100.0	18,400	100.0	18,913	100.0
Health:								
Dental Assistant	767	6.4	802	6.6	1,007	7.6	883	7.0
Dental Hygienist (Associate Degree)	77	.6	-	-	-	-	-	-
Dental Laboratory Technology	142	1.2	340	2.8	304	2.3	275	2.2
Medical Laboratory Assisting, etc.	836	7.0	738	6.1	683	5.1	658	5.2

TABLE 6

ENROLLMENTS IN OCCUPATIONAL EDUCATION 9-12
BY PROGRAMS AND PERCENTAGES (Con't.)

1972-73 THROUGH 1975-76

PROGRAMS	1975-76 Enrollment	%	1974-75 Enrollment	%	1973-74 Enrollment	%	1972-73 Enrollment	%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Practical (Vocational Nursing)	4,591	38.5	4,742	39.1	4,766	35.7	4,686	37.2
Nursing Assistant (Aide)	3,381	28.3	2,297	19.0	3,446	25.8	3,261	25.9
Physical Therapy, etc.	9	.1	-	-	12	.1	11	.1
Radiologic Technology	1	-	5	-	1	-	-	-
Environmental Health	-	-	1	-	-	-	-	-
Mental Health Technology	27	.2	14	.1	-	-	-	-
Medical Assistant	854	7.2	655	5.4	940	7.1	911	7.2
Health Aide	9	.1	16	.1	-	-	-	-
Medical Emergency Technician	4	-	-	-	-	-	-	-
Mortuary Science	10	.1	-	-	-	-	-	-
Other	1,223	10.3	2,516	20.8	2,175	16.3	1,918	15.2
Subtotal	11,931	100.0	12,126	100.0	13,334	100.0	12,603	100.0
Home Economics:								
Care and Guidance of Children	2,228	39.1	2,382	27.2	2,273	28.2	1,904	26.4
Clothing Mgmt., Production & Services	528	9.3	1,390	15.9	1,025	12.7	1,119	15.4
Food Mgmt; Production and Services	1,662	29.2	1,727	19.7	2,133	26.4	1,986	27.4
Home Furnishing, Equipment & Services	375	6.6	517	5.9	302	3.7	277	3.8
Institutional & Home Mgmt. & Services	264	4.6	272	3.1	273	3.4	257	3.5
Other	637	11.2	2,463	28.2	2,069	25.6	1,702	23.5
Subtotal	5,694	100.0	8,751	100.0	8,075	100.0	7,245	100.0
Office:								
Accounting & Computing Operations	46,290	19.9	41,713	18.9	35,465	16.3	32,887	16.0
Programmers & Other Bus. Data Proc.	6,513	2.8	5,223	2.4	5,008	2.3	4,771	2.3
Information Communication Occupations	41	-	5	-	-	-	-	-
Materials Support, Transportation, etc.	11	-	98	-	22	-	21	-
Steno., Secretarial & Related Occupa.	34,692	14.9	34,834	15.8	46,891	21.5	45,105	21.9
Supervisory & Admin. Mgmt. Occupations	1,171	.5	914	.4	1,599	.7	1,133	.6
Typing & Related Occupations	96,284	41.5	91,922	41.6	84,056	38.6	81,276	39.5
Other	47,179	20.4	46,340	20.9	44,863	20.6	40,518	19.7
Subtotal	232,181	100.0	221,049	100.0	217,904	100.0	205,711	100.0

TABLE 6

ENROLLMENTS IN OCCUPATIONAL EDUCATION 9-12
BY PROGRAMS AND PERCENTAGES (Con't.)

1972-73 THROUGH 1975-76

PROGRAMS	1975-76		1974-75		1973-74		1972-73	
	Enrollment	%	Enrollment	%	Enrollment	%	Enrollment	%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Technical:								
Aeronautical Technology	1,586	18.4	208	2.2	971	6.9	848	7.0
Architectual Technology	1,443	16.7	444	4.7	1,104	7.8	865	7.1
Automotive Technology	63	.7	221	2.4	410	2.9	19	.2
Chemical Technology	366	4.2	362	3.9	394	2.8	347	2.9
Civil Technology	113	1.3	425	4.5	362	2.6	367	3.0
Electrical Technology	973	11.3	1,180	12.6	1,516	10.8	1,157	9.6
Electronic Technology	1,100	12.2	2,218	23.7	1,990	14.1	2,447	20.2
Electromechanical Technology	171	2.0	260	2.8	-	-	98	.8
Environmental Control Technology	-	-	13	.1	-	-	-	-
Industrial Technology	31	.4	1	-	1	-	1	-
Instrumental Technology	242	2.8	269	2.9	364	2.6	295	2.4
Mechanical Technology	1,125	12.5	1,044	11.1	1,007	7.1	891	7.4
Metallurgical Technology	53	.6	59	.6	17	-	-	-
Scientific Data Technology	168	1.9	123	1.3	190	1.3	227	1.9
Commercial Pilot Training	25	.3	19	.2	26	.2	3	-
Oceanographic Technology	18	.2	48	.5	-	-	18	.1
Other	1,248	14.5	2,480	26.5	5,770	40.9	4,520	37.4
Subtotal	8,725	100.0	9,374	100.0	14,122	100.0	12,103	100.0
Trades and Industry:								
Air Conditioning	2,021	2.2	2,266	2.2	2,095	2.0	1,933	2.0
Appliance Repair	506	.5	856	.8	584	.6	602	.6
Auto Mechanics & Other Automotive	18,269	19.5	17,315	16.6	17,292	16.4	16,721	16.9
Aviation Occupations	2,174	2.3	3,731	3.6	3,005	2.9	3,063	3.1
Commercial Art Occupations	3,555	3.8	4,046	3.9	3,760	3.6	3,395	3.4
Commercial Fishery Occupations	-	-	-	-	1,057	1.0	-	-
Commercial Photography Occupations	1,123	1.2	1,416	1.3	-	-	1,168	1.2
Carpentry, Masonry, Plumbing, etc.	11,349	12.1	13,016	12.5	11,059	10.5	9,496	9.6
Custodial Service	710	.8	823	.8	721	.7	799	.8
Drafting Occupations	5,525	5.9	6,980	6.7	6,581	6.3	5,472	5.5
Electrical Occupations	7,823	8.3	8,322	8.0	7,418	7.0	6,498	6.6

TABLE 6

ENROLLMENTS IN OCCUPATIONAL EDUCATION 9-12
BY PROGRAMS AND PERCENTAGES (Con't.)

1972-73 THROUGH 1975-76

PROGRAMS	1975-76		1974-75		1973-74		1972-73	
	Enrollment	%	Enrollment	%	Enrollment	%	Enrollment	%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Electronic Occupations	4,513	4.8	4,176	4.0	4,413	4.2	4,318	4.4
Graphic Arts Occupations	3,690	3.9	3,827	3.7	4,772	4.5	4,044	4.1
Maritime Occupations	653	.7	532	.5	410	.4	381	.4
Machine & Metalworking Occupations	7,387	7.9	8.008	7.7	6,756	6.4	5,650	5.7
Barbering, Cosmetology & Other Personal Services	7,914	8.4	7,731	7.4	7,915	7.5	7,750	7.9
Plastics Occupations	119	.1	240	.2	313	.3	259	.3
Law Enforcement Training	143	.2	116	.1	53	-	38	-
Other Public Services	-	-	6	-	3	-	5	-
Quantity Food Occupations	3,191	3.4	3,359	3.2	2,700	2.6	2,533	2.5
Textile Production & Fabrication	2,167	2.3	8,634	8.3	12,418	11.8	12,252	12.4
Other	11,052	11.7	8,924	8.5	11,878	11.3	12,304	12.5
Subtotal	93,884	100.0	104,324	100.0	105,203	100.0	98,681	100.0
Grand Total	381,369		389,828		389,590		367,457	

Includes 7th and 8th Grade Agriculture Enrollments.

Source: New York State Annual Reports for Occupational Education.

Enrollments in some of the courses in the Technical program area have been variable. For example, the range in the "Aeronautical Technology" course went from 208 students or 2.2% to 1,586 students or 18.4% of the total for the program area. In the "Architectual Technology" course enrollments went from 444 students or 4.7% to 1,443 students or 16.7%.

Some courses have had extremely low enrollments statewide over the last four years such as "Radiologic Technology" (Health), "Industrial Technology" (Technical), and "Plastic Occupations" (Trades and Industry).

NUMBERS OF OCCUPATIONAL EDUCATION CLASSROOM TEACHERS

The number of full-time-equivalent occupational education classroom teachers in Grades 9-12 followed the enrollment trend for the period 1972-73 through 1975-76. See Table 7. There were 7,735 full-time-equivalent occupational education teachers in 1972-73, 8,074 in 1973-74, 8,267 in 1974-75, and 8,031 in 1975-76.

There were significant variations in the percentages of teachers allocated to the various program areas. For example, although the Office program area has averaged about 53% of the teachers, it has had about 58% of the enrollments whereas the Trades and Industry Program area has averaged about 29% of the teachers and 27% of the enrollments.

The Health and Home Economics program areas have consistently had a higher percentage of teachers than enrollments, Health averaging about 6% of the teachers and about 3% of the

TABLE 7

NUMBER OF FULL - TIME - EQUIVALENT CLASSROOM TEACHERS
BY OCCUPATIONAL EDUCATION PROGRAM AREAS AND PERCENTAGES

1972-73 THROUGH 1975-76

OCCUPATIONAL PROGRAM AREA (1)	1975-76 Teachers (2)	1975-76 Percent (3)	1974-75 Teachers (4)	1974-75 Percent (5)	1973-74 Teachers (6)	1973-74 Percent (7)	1972-73 Teachers (8)	1972-73 Percent (9)
Agriculture	272	3.4	269	3.3	265	3.3	250	3.2
Health	448	5.6	458	5.5	450	5.6	382	4.9
Home Economics	269	3.3	297	3.6	113	1.4	136	1.8
Technical	188	2.3	157	1.9	233	2.9	232	3.0
Trades and Industry	2,396	29.8	2,422	29.3	2,350	29.1	2,199	28.4
Subtotal	3,573	44.4	3,603	43.6	3,411	42.3	3,199	41.3
Distribution	278	3.5	305	3.7	329	4.0	339	4.4
Office	4,180	52.1	4,359	52.7	4,334	53.7	4,197	54.3
Grand Total	8,031	100.0	8,267	100.0	8,074	100.0	7,735	100.0

Includes 7th and 8th Grade Agriculture Enrollments.

Source: New York State Annual Reports for Occupational Education.

enrollment, and Home Economics averaging about 3% of the teachers and about 2% of the enrollment.

In the other program areas, the number of teachers is in closer proportion to the enrollments.

From 1972-73 through 1975-76 the number of pupils per teacher (full-time equivalents) for all occupational education programs has been regularly higher than for all public school programs--about 24 versus about 19. See Table 8.

The number of pupils per teacher for the Office and Distribution program areas has been considerably higher, averaging about 26 and 30 respectively, than for the five other program areas which averaged about 21.

The Health Program area has had the lowest number of pupils per teacher, averaging about 14. The Home Economics program area shows the greatest inconsistency ranging from 35.7 to 10.6; during the last two years the number of pupils per teachers dropped considerably from 35.7 in 1973-74 to 14.7 in 1974-75 and to 10.6 in 1975-76.

In the other three program areas the number of pupils per teacher during the past four years has been fairly consistent, Trades and Industry averaging about 21, Agriculture about 24, and Technical about 27; however, Technical dropped from 30.3 in 1973-74 to 23.2 in 1975-76.

With few exceptions the average class size for occupational education programs conducted in the public schools during 1975-76 was less for those programs than for selected academic courses. See Table 9.

TABLE 8

NUMBER OF PUPILS PER CLASSROOM TEACHER AND CLASSROOM TEACHERS PER 1,000 PUPILS
FULL-TIME EQUIVALENTS

1972-73 THROUGH 1975-76

OCCUPATIONAL PROGRAM AREA	PUPILS PER TEACHER				TEACHERS PER 1,000 PUPILS			
	1975-76	1974-75	1973-74	1972-73	1975-76	1974-75	1973-74	1972-73
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Agriculture	23.9	24.4	23.7	24.4	41.8	41.0	42.2	41.0
Health	13.3	13.2	14.8	16.5	75.1	75.5	67.5	60.6
Home Economics	10.6	14.7	35.7	26.6	94.5	67.9	28.0	37.5
Technical	23.2	29.9	30.3	26.1	43.1	33.5	33.0	38.3
Trades and Industry	19.6	21.5	22.4	22.4	51.0	46.4	44.7	44.6
Subtotal	18.6	20.5	22.5	22.3	53.6	48.8	44.5	44.8
Distribution	28.7	34.6	28.0	27.9	34.9	28.9	35.8	35.8
Office	27.8	25.4	25.1	24.5	36.0	39.4	39.8	40.8
Grand Total	23.7	23.6	24.1	23.8	42.1	42.4	41.4	42.1
All Public School Programs	19.1	18.4	18.8	19.0	52.5	54.5	53.3	52.5

Sources: Computed from New York State Annual Reports for Occupational Education Information Center on Education.

TABLE 9

AVERAGE CLASS SIZE IN SELECTED COURSES
NEW YORK STATE PUBLIC SCHOOLS*

1975-76

PROGRAM/COURSE	LOCATION						
	Buffalo	New York City	Rochester	Syracuse	Yonkers	Rest of State	Total State
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Agriculture Ed.	19.3	28.3	--	--	17.7	17.3	18.0
Business Ed.	24.1	30.4	21.3	21.5	24.3	21.5	23.8
Trade Ed.	21.2	26.0	19.4	18.8	18.2	18.6	23.0
Technical Ed.	20.3	27.7	12.9	18.0	17.5	16.8	23.5
Distributive Ed.	22.6	27.2	15.0	23.4	16.5	23.5	24.3
Health Occupations Ed	24.9	27.7	22.7	25.5	16.5	25.7	27.0
Home Economics (Occupational)	13.0	26.1	19.5	18.5	17.4	17.6	23.3
English 9	25.8	30.7	27.6	25.7	24.4	24.5	25.8
French 1	21.8	27.6	19.0	20.5	21.6	19.4	20.2
French II	23.7	27.3	20.1	23.1	19.3	19.0	20.0
Spanish I	24.6	30.7	25.9	25.9	24.8	23.2	25.0
Spanish II	23.7	29.7	22.1	25.4	22.6	22.0	23.5
Math 9 (Basic)	27.2	25.7	22.4	23.1	22.2	20.3	21.9
Math 9 (Algebra)	26.7	26.5	29.1	26.8	25.9	25.4	26.2
American Studies	27.1	30.7	25.7	28.7	26.2	24.4	25.7

*Excluding BOCES.

Source: Information Center on Education.

For the Total State, the Agriculture program area had the lowest class size while Health had the highest. In the other Total State comparisons the differences in class size for occupational programs versus selected academic programs were not great. The same was mostly true for Rest of State except that there was more tendency for the occupational education classes to run smaller than academic classes.

Except for New York City, which follows more closely the pattern of Total State, the situation is quite different for the Big Five. Buffalo, Rochester, Syracuse, and Yonkers all show significantly lower class sizes for occupational educational programs than for selected academic courses. Rochester had the lowest of all class sizes -- 12.9 for Technical and Buffalo had 13.0 for Home Economics. It should be kept in mind that BOCES data are not included in Table 9.

COMPARATIVE OCCUPATIONAL EDUCATION COSTS

The per-pupil cost for district-operated occupational education programs (1/2 - Day) for the Total State was $665 in 1973-74, $732 in 1974-75, and $866 in 1975-76. Corresponding costs for the Big Five were $671, $704, and $832 and for Rest of State $660, $754, and $893. See Table 10.

Total State Home Economics was the most expensive program area, averaging more than double the average total occupational education costs for the three years, and Health the second most expensive averaging nearly half as much again of total costs.

TABLE 10

APPROVED OPERATING PER PUPIL COSTS OF OCCUPATIONAL EDUCATION 9-12
BY PROGRAM AREA AND SCHOOL DISTRICT LOCATION*
1973-74 THROUGH 1975-76

OCCUPATIONAL PROGRAM AREA	BIG FIVE					SUBTOTAL	REST OF	TOTAL
	Buffalo	New York City	Rochester	Syracuse	Yonkers	BIG FIVE	STATE	STATE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Agriculture:								
1975-76	$ 557	$ 457	$ -	$ -	$ 2,712	$ 485	$ 958	$ 843
1974-75	548	381	-	-	2,150	402	787	701
1973-74	703	450	-	3,903	2,607	572	592	590
Health:								
1975-76	1,057	1,126	1,826	1,466	965	1,150	3,781	1,423
1974-75	876	864	1,852	1,325	-	899	2,851	1,121
1973-74	736	567	1,592	1,029	2,460	610	3,604	843
Home Economics:								
1975-76	830	2,766	321	1,431	3,578	2,792	2,329	2,422
1974-75	313	2,100	2,243	579	6,793	2,149	681	1,192
1973-74	1,399	1,696	13,425	466	11,990	1,896	1,184	1,475
Technical:								
1975-76	435	893	1,058	477	1,173	839	1,034	856
1974-75	300	574	2,387	919	508	561	676	566
1973-74	323	419	1,276	133	580	439	587	449
Trades and Industry:								
1975-76	720	807	898	926	1,297	833	1,031	863
1974-75	659	600	782	647	1,266	637	605	618
1973-74	417	541	339	616	1,237	542	674	572
Subtotals:								
1975-76	693	930	990	1,062	1,399	922	1,248	1,004
1974-75	594	689	986	765	1,186	700	759	718
1973-74	444	592	548	626	1,230	587	788	644
Distribution:								
1975-76	425	754	513	569	2,180	716	747	737
1974-75	415	565	4,427	406	920	594	516	541
1973-74	214	913	2,431	322	602	797	520	596
Office:								
1975-76	430	823	455	426	753	718	854	825
1974-75	397	772	481	397	506	718	776	756
1973-74	339	881	352	275	360	754	646	680
Grand Totals:								
1975-76	$ 565	$ 866	$ 685	$ 618	$ 982	$ 832	$ 893	$ 866
1974-75	499	725	747	526	698	704	754	732
1973-74	383	729	463	402	540	671	660	665

*Excludes BOCES.

Source: Computed from Information Center on Education Printouts.

The other five program areas were more nearly comparable in cost, Distribution and Office respectively being the least expensive program areas.

The situation was different for the Big Five and Rest of State in that Home Economics was the most expensive program area for the Big Five while Health was the most expensive for Rest of State; both program areas, however, were the two most expensive.

The Agriculture and Technical program areas were least expensive in the Big Five and more expensive in Rest of State. This was also generally the case in the Trades and Industry and Office Program areas, but the situation for the most part was reversed for the Distribution Program area.

Of the Big Five, over the 3-year period 1973-74 through 1975-76, New York City averaged the highest costs, Buffalo the lowest, while Yonkers, Rochester, and Syracuse, averaged the second, third, and fourth highest costs respectively. Rochester and Yonkers showed some unusually high costs in the Home Economics and Health Program areas, while Yonkers had the highest costs in the most program areas.

A more detailed analysis of Big Five costs could be made from Table 10. For example, over the past three years Agriculture has been the least expensive program area in New York City, while Distribution has been the least expensive in Buffalo; Home Economics and Health respectively, have been most expensive in New York City with the reverse true for Buffalo.

The per-pupil cost figures in Tables 11, 12, and 13 were based on approved operating expenditures for occupational education

programs in local school districts only and were derived from computer printouts furnished by the Information Center on Education. The method used in determining these costs was to allocate actual salaries paid to occupational education teachers and to prorate remaining expenditures by the percentage the number of full-time-equivalent professional staff for occupational education was of the total number of full-time-equivalent professional staff for all programs.

In comparing per-pupil approved operating costs for occupational education Grades 9-12 in school districts with Grades K-6, the ratios for the Big Five have been significantly higher than for the Rest of State and Total State. Big Five cost ratios over the past three years have averaged nearly 21% higher than Rest of State and nearly 17% higher than Total State, if it is assumed that the cost of the academic portion of an occupational education 9-12 student is equal to 50% of all the other program costs for Grades 7-12. However, some fiscal experts, among them Dr. Austin D. Swanson, Professor of Education, Department of Educational Administration, SUNY-Buffalo, feel that the academic costs for Grades 7-12 should be weighted more heavily. The reason is that the cost of certain services, such as guidance, psychological, testing, and scheduling, for a half-day student is the same or nearly so as for a full-time student. If the academic costs should be weighted 75% (Method B) rather than 50% (Method A), the per-pupil cost ratios as shown in Table 11 would increase approximately one-third. See Table 11.

All the cost ratios for the Big Five, Rest of State, and

TABLE 11

APPROVED OPERATING PER PUPIL COST RATIOS
OF OCCUPATIONAL EDUCATION 9-12 TO FULL K-6 (1.0000)
BY SCHOOL DISTRICT LOCATION*

1973-74 THROUGH 1975-76

DISTRICT (1)	1975-76 METHOD A (2)	1975-76 METHOD B (3)	1974-75 METHOD A (4)	1974-75 METHOD B (5)	1973-74 METHOD A (6)	1973-74 METHOD B (7)
Big Five:						
Buffalo	1.2033	1.6097	1.2638	1.6903	1.3402	1.8260
New York City	1.2397	1.6139	1.2797	1.6758	1.3270	1.7118
Rochester	1.4092	1.8479	1.4444	1.8494	1.2558	1.6924
Syracuse	1.0732	1.4229	1.0743	1.4181	1.1206	1.5047
Yonkers	1.1968	1.9053	1.3405	1.7478	1.0812	1.4288
Subtotal Big Five:	1.2435	1.6214	1.2775	1.6747	1.2995	1.6888
Rest of State:	1.0576	1.3861	1.0617	1.3969	1.0622	1.3984
Total State:	1.0798	1.4105	1.0951	1.4347	1.1064	1.4454

*Excludes BOCES.

Method A is based on the cost of occupational education 9-12 (1/2-day) plus 50% of all other program costs for grades 7-12.

Method B is based on the cost of occupational education 9-12 (1/2-day) plus 75% of all other program costs for grades 7-12.

Source: Computed from Information Center on Education Printouts.

Total State have declined each year from 1973-74 through 1975-76, the Big Five showing the greatest decline and Rest of State the least. This same pattern did not hold, however, for the individual Big Five cities, except for Buffalo and New York City.

Over the three-year period Rochester had the highest cost ratios, Syracuse the lowest, and New York City, Buffalo, and Yonkers respectively had the second, third, and fourth highest by using Method A. If Method B were used, Rochester would still have the highest cost ratios, while the other four cities would be quite comparable.

The low cost ratios for Rest of State, in comparison with those for the Big Five, brought the Total State down to an average of little over 1.09 by using Method A and 1.43 by using Method B for the years 1973-4 through 1975-6.

The average per pupil costs for BOCES' Occupational Education Programs (1/2-day) were $986 in 1972-73, $1,043 in 1973-74, $1,168 in 1974-75, and an estimated $1,254 in 1975-76. The range of such costs for those same years was $624 to $2,407; $628 to $1,955; $756 to $1,907; and an estimated $836 to $2,030. See Table 12.

In general, those BOCES located in the New York City metropolitan area averaged the highest costs over the four-year period, while the lower-cost BOCES were scattered throughout the state.

The per pupil costs for BOCES-operated occupational education programs for the period 1973-74 through 1975-76 were consistently higher than for such district-operated programs.

TABLE 12

ACTUAL PER PUPIL EXPENDITURES FOR OCCUPATIONAL EDUCATION 9-12
BY BOCES (PROGRAM COSTS ONLY)

1972-73 THROUGH 1975-76

BOCES (1)	1975-76* (2)	1974-75 (3)	1973-74 (4)	1972-73 (5)
Albany-Schoharie-Schenectady	$ 1,196	$ 1,059	$ 956	$ 750
Allegany	998	978	905	881
Broome	939	889	726	624
Cattaraugus	900	916	653	862
Cayuga	963	1,062	936	835
Chautauqua	1,304	1,044	705	870
Clinton-Essex	975	890	779	774
Cortland-Madison	1,127	756	628	826
Delaware-Chenango	950	1,038	799	858
Dutchess	1,098	1,125	938	859
Erie #1	995	1,036	959	954
Erie #2 - Cattaraugus	1,459	1,148	965	910
Franklin	1,144	863	793	988
Genesee-Wyoming	1,290	1,026	862	978
Greene-Delaware-Schoharie-Otsego	1,187	1,137*	908*	1,083*
Greene #2	1,289	1,178*	1,000*	1,096*
Hamilton-Fulton-Montgomery	1,167	937	1,002	1,098
Herkimer	1,210	797	714	752
Jefferson-Lewis	960	843	766	822
Livingston-Steuben	1,016	978	763	836
Madison	826	806	746	689
Monroe #1	1,799	1,175	977	958
Monroe-Orleans	1,182	1,128	1,116	884
Nassau	1,943	1,612	1,955	1,466
Oneida #1	1,241	1,010*	974*	1,325
Oneida #2	1,300	1,037*	1,034*	1,286
Onondaga-Madison	1,200	1,548	723	974
Ontario-Seneca-Wayne-Yates	1,050	905	886	766
Orange-Ulster	1,203	1,092	1,014	1,128
Orleans-Niagara	1,116	888	750	729
Oswego	1,089	949	834	683
Putnam-Westchester	1,735	1,434	1,482	1,279
Rensselaer-Columbia	1,202	1,032	1,232	671
Rockland	1,705	1,481	1,411	1,228
St. Lawrence	1,109	825	740	726
Saratoga	1,144	947	846	712
Schuyler-Chemung	1,428	1,213	772	1,000
Steuben-Allegany	1,300	932	737	730

TABLE 12

ACTUAL PER PUPIL EXPENDITURES FOR OCCUPATIONAL EDUCATION 9-12
BY BOCES (PROGRAM COSTS ONLY) (Con't.)

1972-73 THROUGH 1975-76

BOCES (1)	1975-76* (2)	1974-75 (3)	1973-74 (4)	1972-73 (5)
Suffolk #1	$ 1,788	$ 1,907	$ 1,839	$ 2,407
Suffolk #2	1,525	1,113	1,048	1,089
Suffolk #3	1,775	1,486	1,091	1,114
Sullivan	1,600	1,071	1,121	1,394
Tompkins-Seneca	1,124	1,418	1,121	1,065
Ulster	1,112	1,014	952	893
Warren-Washington	1,000	876	845	842
Westchester #2	2,030	1,598	1,478	1,526
TOTAL	$ 1,254	$ 1,168	$ 1,043	$ 986
RANGE	$ 836-2,030	$ 756-1,907	$ 628-1,955	$ 624-2,407

*Estimates based on BOCES Budget Questionnaires.

Sources: Division of Educational Finance (Audited Expenditures); Office for Occupational and Continuing Education (Enrollments)

(The Osborne-Woodworth study[1] showed the same finding). See Table 12.

During this period BOCES costs averaged about 57% more than Big Five costs, about 50% more than Rest of State costs, and about 53% more than Total State costs.

The three-year average cost for BOCES was $1,155 and for district-operated Total State $754. By prorating these costs according to average BOCES enrollments (14%) and school district Total State enrollments (86%) the statewide per-pupil cost for occupational education (1/2 day) averaged $810 ($1,155 x 14% + $754 x 86%). (The Fleischmann Commission Report[2] indicated a $658 per-pupil expenditure (local and state funds) for occupational education in 1970-71. The LCER Report on BOCES[3] estimated the 1974-75 per-pupil cost of BOCES occupational educational programs at $1,220. See Table 13.

Table 14 shows costs for full-time students (one-half day occupational education 9-12 plus one-half day academic 7-12). For BOCES students BOCES costs for occupational education were used plus one-half 7-12 costs for Rest of State; for the Big Five, Rest of State, and Total State one-half day occupational education costs and one-half day 7-12 costs for each of these categories were combined. (Method A). Such costs using 75%, rather than 50%, of 7-12 costs are shown in Method B.

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[1] Study of the Costs of Occupational Education in Selected Boards of Cooperative Educational Services and Large School Districts in New York State, Maurice G. Osborne and Burdette E. Woodworth, SED, October 1970, pp. 5-16.

[2] Report of the New York State Commission on the Quality, Cost and Financing of Elementary and Secondary Education, Manly Fleischmann, Chairman, Vol. 2, p. 7-23.

[3] Boards of Cooperative Educational Services Finances, Legislative Commission on Expenditure Review, June 30, 1976, p. 11.

TABLE 13

COMPARISON OF PER PUPIL COSTS OF OCCUPATIONAL EDUCATION 9-12[1]
BY LOCATION

1973-74 THROUGH 1975-76

LOCATION (1)	1975-76 (2)	1974-75 (3)	1973-74 (4)
BOCES	$1,254[2]	$1,168	$1,043
Big Five:			
Buffalo	565	499	383
New York City	866	725	729
Rochester	685	747	463
Syracuse	618	526	402
Yonkers	982	698	540
Subtotal Big Five	$ 832	$ 704	$ 671
Rest of State	$ 893	$ 754	$ 660
Total State	$ 866	$ 732	$ 665

1 Program costs only for BOCES; approved operating expenses for school districts.

2 Estimate based on BOCES Budget Questionnaires.

Source: Computed from data supplied by Information Center on Education printouts, Division of Educational Finance, and Office for Occupational and Continuing Education.

TABLE 14

COMPARISON OF PER PUPIL COSTS FOR FULL-TIME STUDENTS
ONE-HALF DAY OCCUPATIONAL EDUCATION (9-12)
PLUS ONE-HALF DAY ACADEMIC (7-12) BY LOCATION

1973-74 THROUGH 1975-76

LOCATION (1)	1975-76 METHOD A (2)	1975-76 METHOD B (3)	1974-75 METHOD A (4)	1974-75 METHOD B (5)	1973-74 METHOD A (6)	1973-74 METHOD B (7)
BOCES	$ 2,847	$ 3,643	$ 2,556	$ 3,250	$ 2,245	$ 2,846
Big Five:						
Buffalo	2,090	2,796	1,898	2,539	1,698	2,313
New York City	2,263	2,946	2,113	2,767	1,914	2,469
Rochester	2,180	2,859	2,111	2,703	1,851	2,494
Syracuse	1,766	2,342	1,611	2,126	1,451	1,948
Yonkers	2,183	3,475	2,130	2,777	1,751	2,314
Subtotal Big Five	$ 2,247	$ 2,930	$ 2,089	$ 2,738	$ 1,866	$ 2,425
Rest of State	$ 2,564	$ 3,360	$ 2,198	$ 2,892	$ 1,899	$ 2,499
Total State	$ 2,462	$ 3,216	$ 2,176	$ 2,852	$ 1,911	$ 2,496
Approved Operating Expenditures Per Pupil in WADA (Public Schools)*	$1,798		$1,697		$1,501	

Note: BOCES costs consist of program costs only for Occupational Education (9-12) and approved operating expenses for 1/2-day academic (7-12) for rest of state; all other costs reflect 1/2-day Occupational Education (9-12) and 1/2-day academic (7-12) approved operating expenses. Method A reflects 50% academic costs; Method B reflects 75% academic costs.

Source: Computed from data supplied by Information Center on Education printouts, Division of Educational Finance, and Office for Occupational and Continuing Education.

*Education Statistics Estimates, Fall 1976, Information Center on Education.

For the period 1973-74 through 1975-76 the cost of a full-time student attending BOCES one-half day and his/her school district one-half day averaged $2,549, while the corresponding costs were $2,067 in the Big Five, $2,220 in Rest of State, and $2,183 in Total State (Method A). By using Method B the corresponding costs would be $3,246, $2,698, $2,917, and $2,855 respectively.

Although not a true comparison, since WADA rather than enrollment is used, but nevertheless of interest, the approved operating expenditures per pupil in the public schools for all programs averaged $1,665 for the same period.

Federal grants for occupational education have averaged nearly $34 million for each of the past four years, an average annual per-pupil amount of about $89. For 1970-71 the Fleischmann Commission Report[1] per pupil amount was $42. The total amount of these funds expended for BOCES buildings was between $3 and $5 million, with a maximum of $500,000 for any one building. See Table 15.

An explanation of the guidelines followed in funding BOCES proposals for the use of federal funds is contained in the Appendix (Post-Arnold memorandum dated May 13, 1977).

STATE AID FOR OCCUPATIONAL EDUCATION PUPILS

At present such state aid, in its simplest form, is computed as follows:

BOCES-Operated Programs. All programs are treated a-

[1]Fleischmann, op. cit., p. 7-23.

TABLE 15

VOCATIONAL EDUCATION FORMULA GRANT PROGRAMS
BY LEGISLATIVE PURPOSE AND AMOUNT

1972-73 THROUGH 1975-76

PROGRAM (1)	1975-76 (2)	1974-75 (3)	1973-74 (4)	1972-73 (5)
Sec. 102(b) Disadvantaged	$ 1,312,591	$ 1,312,591	$ 1,317,471	$ 1,331,083
Basic Grants	27,755,366	28,113,152	27,186,917	28,155,017
Research (State)	590,972	590,972	593,157	559,763
Exemplary (State)	311,559	311,559	315,734	209,630
Consumer and Homemaking	2,691,574	2,363,205	2,042,372	1,705,824
Cooperative Education	893,132	893,132	906,813	1,120,769
Work-Study	769,897	769,897	626,469	527,971
TOTAL	$34,325,091	$34,354,508	$32,988,933	$33,610,057
Amount Per Pupil	$90	$88	$85	$91

Includes Secondary, Postsecondary, and Adult.

Source: New York State Annual Reports for Occupational Education.

like in terms of generating aid, that is, an occupational education student generates the same kind of aid as the handicapped student or the student taught by an itinerant teacher. The basic formula is either the eight mills or the aid ratio, whichever is greater.

School-District Programs Other Than the Big Five. The attendance for occupational education students is included with the attendance for all other students; there is no breakout for the former. They come under the same formula, which basically is $1,200 per TAPU ($1,400 beginning with aid paid in 1977-78) minus the 15 mills' local contribution.

Big-Five City School Districts. The regular attendance, which includes occupational education students, generates TAPU's as in point Number 2 above. In addition, more aid is generated for four occupational education programs -- Trade and Industrial, Technical, Agriculture, and Health -- in Grades 10 through 12. Consequently, this aid is an "add-on" to the aid mentioned in point Number 2 above. The additional aid is based on $1,400 per TAPU, less the 15 mills' local contribution.

FINDINGS AND CONCLUSIONS

Based upon the data collected and analyzed, the findings of this study are:

1. Board of Regents' policy regarding occupational education appears to be well comprehended, accepted, and implemented at state and local levels. Financial constraints cause some concern in implementing occupational education programs.

2. Occupational education enrollments Grades 9-12 were fairly constant for the period 1972-73 through 1975-76 averaging a little more than 379,000 annually. BOCES accounted for about 14% of the total, the Big Five about 38%, and LEA's about 48%. New York City had about 80% of the Big Five and about 1/3 of the total state occupational education enrollments.

3. District-operated programs accounted for a large percentage of three occupational education program areas: Office 98%; Distribution 94%; and Technical 92%. BOCES averaged 40% of the enrollments in the four other program areas.

4. Occupational education enrollments 9-12 by population groups during the past four years have followed a pattern similar for all public school pupils: general population 73%; disadvantaged 25%; and handicapped 2%. These enrollments have averaged about 35% of total public school enrollments 9-12.

5. Certain courses within program areas have a high percentage of enrollments for those areas such as the "General Merchandise" course in the Distribution program area (77%), the "Typing and Related Occupations" course in the Office program area (41%), and the Practical (Vocational) Nursing" course in the Health program area (38%). Other courses have had very low percentage enrollments such as "Radiologic Technology" in the Health program area, "Industrial Technology" in the Technical program area, and "Plastic Operations" in the Trades and Industry program area, all of which have averaged 1% or less for the past four years.

6. Pupil-teacher ratios, based on full-time equivalents, for all occupational education 9-12 programs have been higher than

for all public school programs during the past four years -- 24 versus 19. Such ratios for the Office and Distribution program areas have averaged about 26 and 30 respectively and for the other five program areas about 21%. The Health program area has consistently had the lowest pupil-teacher ratio (14) while the Home Economics program area has dropped drastically (from 35.7 in 1973-74 to 10.6 in 1975-76).

7. Per-pupil costs, as expected, have followed the same trend as pupil-teacher ratios, namely, the Home Economics and Health program areas having had the highest costs for the past three years, and the Distribution and Office program areas the lowest costs. Although an analysis of individual-course costs within program areas has not been made, it is reasonable to conclude that the low-enrollment courses are the most expensive; some of these are extremely high in cost but, because the enrollments are so low, there is little effect on costs for the total occupational education program areas.

8. In the district-operated programs the per-pupil approved operating cost ratios for occupational education 9-12 versus Full K-6 during the past three years have been significantly higher for the Big Five than for the Rest of State and for the Total State.

9. During the past three years per-pupil costs for BOCES-operated occupational education programs have exceeded Big Five such costs by 57%, Rest of State such costs by 50%, and Total State such costs by 53%. The cost of a full-time student 1/2-day occupational education and 1/2-day academic has averaged

for BOCES $2,549, for the Big Five $2,067, for Rest of State $2,220, and for Total State $2,183. These same averages would be $3,246, $2,698, $2,917, and $2,855 respectively if a 75%, rather than 50%, weighting were used for the academic portion of the costs.

10. Actual occupational education program costs are not available at the state level, except for BOCES. The new accounting system presently being piloted and soon to be in effect for all BOCES will provide even better cost figures. The document entitled, "Program Budgeting for School Districts," published by the Division of Educational Services, State Education Department in 1973 should enable school districts to provide good occupational program costs.

11. Categorical state aid for occupational education 9-12 does not appear to be the best method of financial support. Rather, the continuation of weighting of all regular 7-12 pupils, of BOCES aid, and of Big Five aid in lieu of BOCES aid (if the Big Five are not permitted to join or become a BOCES) seems to offer a better solution unless it is decided the academic portion costs should be greater than 50% of such costs. If the latter is the case, present formulas may need to be adjusted.

A P P E N D I X

RECEIVED
MAY 17 1977
Assistant Commissioner for
Educational Finance and
Management Services

A. Buell Arnold

May 13, 1977

Dale M. Post

In regard to your request for basic parameters for the use of VEA funds to develop and support programs in Boards of Cooperative Educational Services

The basic guidelines for funding proposals submitted by the BOCES from Part B of the Vocational Education Amendments of 1968 are as follows:

1. New Programs for secondary students are supported by Federal Funds for three years at decreasing levels of support. One hundred percent of instructional salaries and fringes are provided the first year with 50% and 30% of these costs being reimbursed the second and third years. All instructional equipment for new programs is purchased with federal money.

2. Established programs for secondary students which are modernizing in order to replicate current conditions in business and industry receive federal funds to pay for new equipment.

3. Programs for the handicapped and disadvantaged receive federal support not only for instruction but also for special support services.

4. Ancillary personnel such as industry-education coordinators, are funded for three years with a pattern of diminishing support similar to that for secondary instructional programs.

5. Adult programs are supported on a continuing basis with only a portion of instructional salaries and fringes receiving federal support. $7.50/hr plus 50% of the cost over that base is the formula used to calculate the extent of that support.

6. The provision of federal funds to cover indirect costs is discouraged.

7 The above items summarize the general policy which is applied to all BOCES proposals in the normal course of events. Under special circumstances modifications can be made in these practices.

The description of typical pattern of support are individually requested by a proposal format. Each request must provide evidence of labor needs, advisory input, cost efficiencies and many other criteria. Applications are also competitive for the limited funds.